Pearson BTEC

First teaching from September 2022

Pearson BTEC
Tech Award Level 1/2 in

Digital Information Technology

Component 3: Effective digital working practices

L1/2

Sample Assessment Materials

First teaching from September 2022

Issue 1

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Contents

Question paper **1**

Sample mark grid **13**

Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number

Learner Registration Number

Pearson BTEC Tech Award in Digital Information Technology

Sample assessment materials for first teaching September 2022

Time 1 hour 30 minutes

Paper reference **12345/01**

Digital Information Technology

COMPONENT 3: Effective Digital Working Practices

You do not need any other materials.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and learner registration number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*

Information

- The total mark for this paper is 60.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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1/1

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Answer ALL questions. Write your answers in the spaces provided.

1 Andrea owns an indoor trampoline park.

Customers can pay for their visit to the park on the park's website.

(a) The current website does not have any measures to protect it from external threats.

Give **two** potential external threats when paying through a website.

(2)

1 .....

2 .....

Andrea has decided to make the website secure and more accessible.

(b) Explain **one** security feature that could be added to a website to make it more secure.

(2)

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(c) Explain **one** accessibility feature that could be included on a website to assist users with additional needs.

(2)

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The park has recently lost data due to an employee accidentally deleting customer records.

(d) Explain **one** way that the risk of accidental deletion of records could be reduced.

(2)

Andrea needs to back up her company's data.

She will use a service provider to back up her data to the cloud.

(e) Explain **two** benefits to a company of using a service provider to back up data.

(4)

1

2

(Total for Question 1 = 12 marks)

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2 PublishShare is a publishing company

The company uses a range of digital systems to support its business.

PublishShare has a website where customers can buy products.

(a) State **two** ways a company can personalise advertisements for its customers when they visit the website.

(2)

1 .....

.....

2 .....

.....

PublishShare's customers require an account to buy products. Their account contains personal information.

(b) Describe how PublishShare would ensure they comply with data protection laws when passing this information to another company.

(2)

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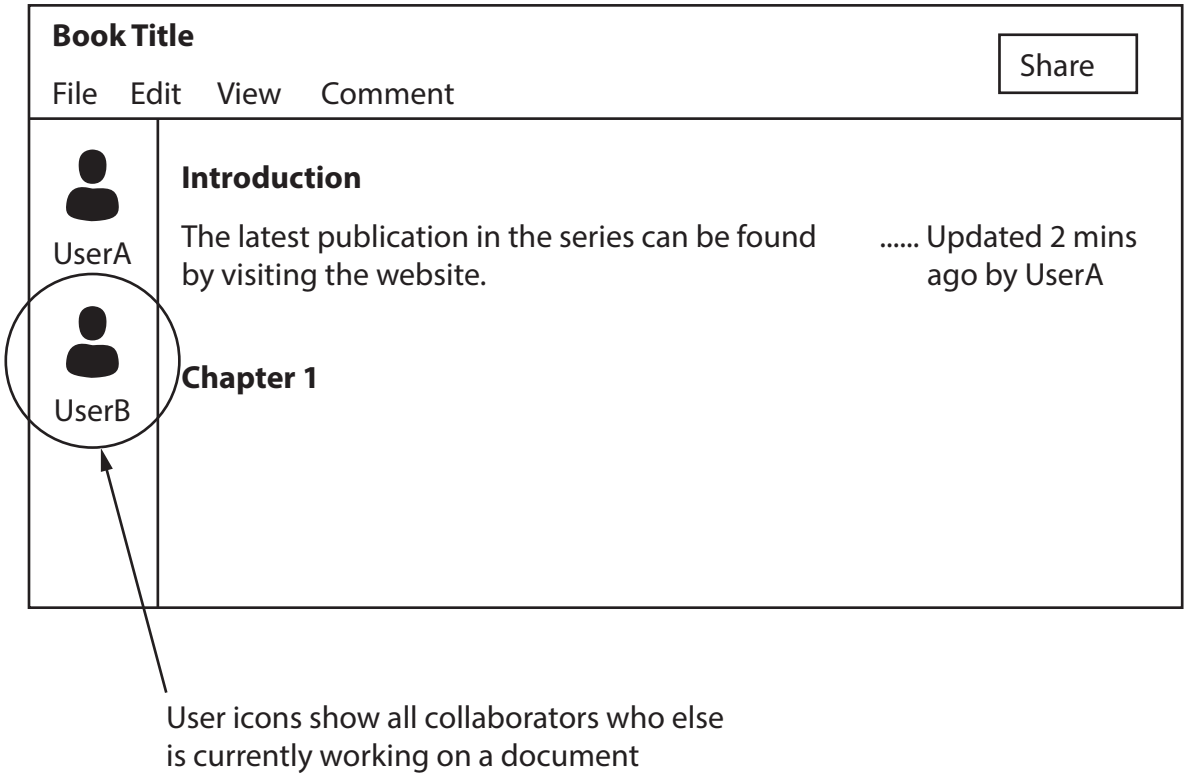
PublishShare use cloud computing technologies for employees and writers to collaborate.

(c) Annotate the diagram by:

- identifying and labelling two different collaboration features of this system
- stating how each feature aids collaboration.

(4)

An example has been provided.


Book Title
File Edit View Comment
Share
UserA
UserB
Introduction
The latest publication in the series can be found by visiting the website.
..... Updated 2 mins ago by UserA
Chapter 1
User icons show all collaborators who else is currently working on a document

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(d) The use of collaborative technologies will allow PublishShare's employees to work from home.

Explain **two** benefits to a company of allowing its employees to work from home.

(4)

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2 .....

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(Total for Question 2 = 12 marks)

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3 Chocawoca is a confectionery manufacturer that makes high quality sweets and chocolates that they sell in their shops and online.

Chocawoca's recipes are protected by intellectual property rights.

(a) Explain **one** way that Chocawoca can use intellectual property rights to protect its recipes.

(2)

Chocowaca is concerned about the internal threats to their data.

(b) Explain **two** possible internal threats to a company's data.

(4)

1

2

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Staff use a key to access Chocawoca's server rooms.

Chocawoca is considering installing a biometric system to improve security.

(c) Explain **two** benefits to a company of using biometric systems to improve security.

(4)

1 .....

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2 .....

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Chocawoca staff use passwords to access the IT systems.

The staff must change their passwords regularly.

(d) When staff log in:

- The system checks how long the password has been used for.
  - If the password has been used for 14 days or more they must set a new password
- The new password must be at least 10 characters long
- If the new password does not meet the given rules an error message is displayed
- Users are not allowed to log in until the new password meets the new password rules.

On page 9 draw a flowchart to show the process for when staff log in.

(6)

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(Total for Question 3 = 16 marks)

4 GudgeTech Ltd is a technology development company that makes a range of digital systems, devices and apps.

(a) GudgeTech Ltd test the security of their digital systems.

Explain **one** way a company could perform penetration to test the security of a digital system.

(2)

GudgeTech Ltd use device hardening to improve the security of their systems.

(b) Explain **one** reason why device hardening improves system security.

(3)

GudgeTech Ltd wants to introduce a video streaming service to provide content for their devices.

(c) Explain **one** reason why 'Net neutrality' helps new companies compete with more established video streaming services.

(3)

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GudgeTech Ltd have offices in London, New York, Hong Kong and Sydney.

Their latest project is developing a new smartphone and designers from all offices will be involved.

(d) Discuss how modern technologies can be used to help the company manage this project.

(6)

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GudgeTech Ltd are considering the two proposals to improve their use of digital systems:

- Proposal 1: Power off all systems outside working hours
- Proposal 2: Distributing internal documents using only electronic methods.

(e) Evaluate which proposal would have the most positive impact on GudgeTech Ltd.

(6)

(Total for Question 4 = 20 marks)

TOTAL FOR PAPER = 60 MARKS

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Component 3: Effective Digital Working Practices – Sample mark scheme

General marking guidance

- All learners must receive the same treatment. Examiners must mark the first learner in exactly the same way as they mark the last.
- Mark grids should be applied positively. Learners must be rewarded for what they have shown they can do rather than be penalised for omissions.
- Examiners should mark according to the mark grid, not according to their perception of where the grade boundaries may lie.
- All marks on the mark grid should be used appropriately.
- All the marks on the mark grid are designed to be awarded. Examiners should always award full marks if deserved. Examiners should also be prepared to award zero marks if the learner's response is not rewardable according to the mark grid.
- Where judgement is required, a mark grid will provide the principles by which marks will be awarded.
- When examiners are in doubt regarding the application of the mark grid to a learner's response, a senior examiner should be consulted.

Points-Based Mark Scheme Guidance

Points-based mark schemes are made up of:

1. Mark scheme rubric:

   A mark scheme rubric instructs an examiner as to how each mark is awarded.
2. Example responses:

   These demonstrate the type of acceptable responses that a learner might provide and where each mark is awarded.
3. Additional marking guidance:

   This informs examiners about any parameters which should be applied, for example 'accept any other appropriate/alternative responses'.

Applying the points-based mark scheme guidance

Examiners should follow the mark scheme rubric and use the example responses as a guide for the relevance and expectation of the responses. Learners must be credited for any appropriate response. Should learners provide answers that meet the rubric but in an alternative order, credit should be given.

Levels-Based Mark Scheme Guidance

Levels-based mark schemes (LBMS) have been designed to assess learners' work holistically. They consist of two parts:

1. Indicative content:

   Indicative content reflects content-related points that a learner might make but is not an exhaustive list. Nor is it a model answer. Learners may make some or none of the points included in the indicative content as its purpose is as a guide for the relevance and expectation of the responses. Learners must be credited for any appropriate response.

2. Levels-based descriptors:

   Each level is made up of a number of traits which when combined together articulate the quality of response that a learner needs to demonstrate. The traits progress across the levels to demonstrate the different expectations of each level. When using a levels-based mark scheme, the 'best fit' approach should be used.

Applying the levels-based descriptors

Examiners should take a 'best fit' approach to determining the mark.

- Examiners should first make a holistic judgement on which level most closely matches the learner's response. Learners will be placed in the level that best describes their answer. Answers can display characteristics from more than one level, and where this happens markers must use any additional guidance (for example weighting of traits) and their professional judgement to decide which level is most appropriate.
- The mark awarded within the level will be decided based on the quality of the answer and will be modified according to how securely all traits are displayed at that level:
  - marks will be awarded at the top of that level if the learner has evidenced each of the descriptor traits securely.
  - where the response does not securely meet all traits, the marks should be awarded based on how closely the descriptor has been met.

Question Number	Answer	Mark
1 (a)	Award **one** mark for each correctly given potential external threat, up to a maximum of **two** marks from: • Phishing (1) • Pharming (1) • Man-in-the-middle attacks (1) • Malware (1) • Unauthorised access (1) Accept any other appropriate response.	(2)

Question Number	Answer	Mark
1 (b)	Award **one** mark for a correct security feature (1) and **one** mark for a justification for that security feature (1), up to a maximum of **two** marks. • Add two factor authentication to the website (1) so that personal information/payment details are always confirmed by the customer (1) • CAPTCHA Tests (1) to ensure the site is being accessed by a real user (1) • Add HTTPS to the website (1) so that data is encrypted (when processing payments/personal information) (1) Marking points may be reversed/given in any order. Accept any other appropriate response.	(2)

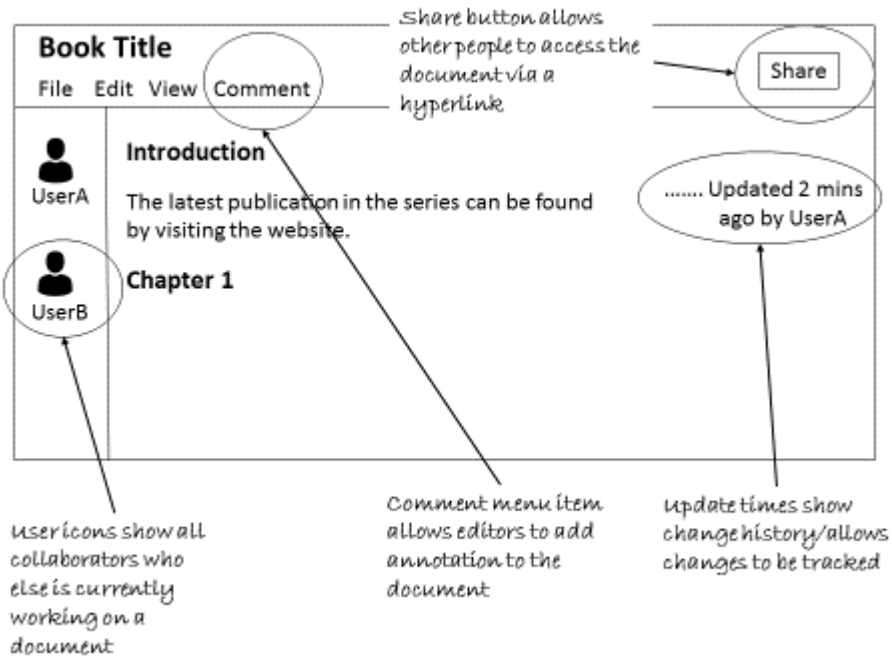
Question Number	Answer	Mark
1 (c)	Award **one** mark for a correct accessibility feature (1) and **one** mark for a justification for that accessibility feature (1), up to a maximum of **two** marks. • Adjustable font/text size (1) to aid visually impaired users (1) • Adjustable buttons/widgets size (1) so that customers with a (motor) disability can access the website • Alt text on images (1) to improve screen reader support/to explain what the image is showing (visually impaired users) (1) Marking points may be reversed/given in any order. Accept any other appropriate response. **Do not accept** 'to make it more accessible' unless qualified as part of a larger response.	(2)

Question Number	Answer	Mark
1 (d)	Award **one** mark for a correct way (1) and **one** mark for a justification for that way (1), up to a maximum of **two** marks. • Setting levels of permissions/access (1) so that only specific employees can delete data (1) • Onscreen warning prompt to employees when they are deleting data (1) so that employees must confirm deletion of records (to prevent accidental deletion) (1) • Provide staff training on responsible use of IT systems (1) so that they fully understand the impact of deleting records (1) Marking points may be reversed/given in any order. Accept any other appropriate response.	(2)

Question Number	Answer	Mark
1 (e)	Award **one** mark for each correct benefit (1) and **one** mark for a justification of each benefit (1), up to a maximum of **four** marks. • No need to hold an internal disaster recovery policy (1) because the service provider would have their own policy (1) • The data will be backed up at a different location (1) which protects it if local systems are damaged (fire, flood, etc.) (1) • No need for maintenance (1) so there is no need to employ IT staff (1) • Support available (1) so that technical issues can be resolved quickly (1) Marking points may be reversed/given in any order. Justifications may be interchangeable, but must only be rewarded once. Accept any other appropriate response.	(4)

Question Number	Answer	Mark
2 (a)	Award **one** mark for each correctly stated way, up to a maximum of **two** marks from: • Allow customers to set advertisement preferences (1) • Use purchase history (to match similar products) (1) Accept any other appropriate response.	(2)

Question Number	Answer	Mark
2 (b)	Award **one** mark for each of the following linked points, up to a maximum of **two** marks. • Notify the customer that there has been a change in the way their data will be used (1) and ask them to give consent (to share their information) (1) • Share only the data which is needed by the company (1) and anonymise as appropriate (1) • Check the external company's policies (1) and analyse that the level of security complies with UK law (1) • Check where the external company will store the data (1) and that it is in a region with appropriate data protection laws (1) • Contact the information commissioner (1) and register the change in use (1) Accept any other appropriate response.	(2)

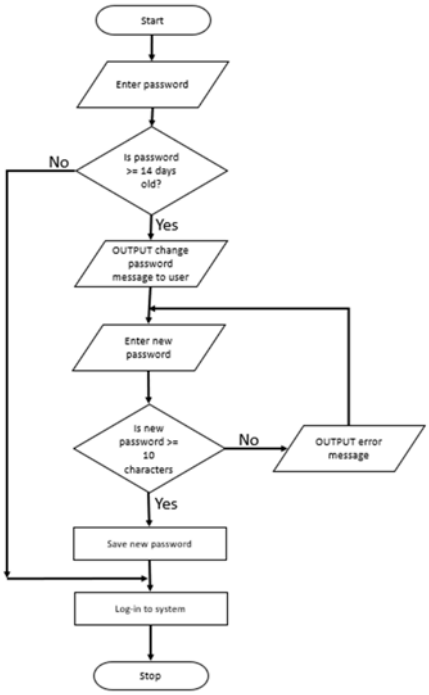
Question Number	Answer	Mark
2 (c)	Award **one** mark for each correctly identified and labelled collaboration feature (1) and **one** mark for correctly stating how each feature aids collaboration (1), up to a maximum of **four** marks.  	(4)
	Example provided from question paper – *User icons labelled (1): show all collaborators who else is currently working on a document (1)* • Share button (1): allows other people to access the document via a hyperlink (1) • Comment menu (1): item allows editors to add annotation to the document (for other people to see) (1) • Update times (1): shows change history/allows changes to be tracked (1) Accept alternative/appropriate wording of collaboration feature.	

Question Number	Answer	Mark
2 (d)	Award **one** mark for each correct benefit (1) and **one** mark for a justification of each benefit (1), up to a maximum of **four** marks. • Reduced need for office space (1) which would mean that costs are reduced (1) • Improved employee morale (1) which would result in higher productivity (1) • Increases its recruitment pool (1) because there is a wider geographical area that companies can select employees from (1) Marking points may be reversed/given in any order. Justifications may be interchangeable, but must only be rewarded once. Accept any other appropriate response.	(4)

Question Number	Answer	Mark
3 (a)	Award **one** mark for a correct way (1) and **one** mark for a justification for that way (1), up to a maximum of **two** marks. • Patents (1) so that Chocawoca has exclusive rights to the recipes for a period of time (1) • Copyright (1) so that others must ask permission to use them (1) Marking points may be reversed/given in any order. Accept any other appropriate response.	(2)

Question Number	Answer	Mark
3 (b)	Award **one** mark for each correct internal threat (1) and **one** mark for a justification of each internal threat (1), up to a maximum of **four** marks. • Unintentional disclosure of data (1) which may be caused by overheard conversations/forwarding a file to the wrong recipient (1) • Visiting untrustworthy websites (1), which could result in files with viruses or malware being installed onto computers (1) • Use of portable devices (1) which could lead to confidential information being mislaid/being stolen (1) Marking points may be reversed/given in any order. Justifications may be interchangeable, but must only be rewarded once. Accept any other appropriate response.	(4)

Question Number	Answer	Mark
3 (c)	Award **one** mark for each correct benefit (1) and **one** mark for a justification of each benefit (1), up to a maximum of **four** marks. • Only the registered users can access the room (1) because they have to be present (to be measured) (1) • The system can track who accesses the room (1) because the data is unique to an individual (1) • The users will no longer need a key (1) which can easily be lost/stolen (1) Marking points may be reversed/given in any order. Justifications may be interchangeable, but must only be rewarded once. Accept any other appropriate response. **Do not accept** 'it improves security' as this is given in the question.	(4)

Question Number	Answer	Mark
3 (d)	Example flow chart (Note: Other solutions can be credited.)  Accept any other relevant phrasing/wording in flow chart. Credit alternative solutions that use correct logic and would produce the expected outcome.	(6)

Level	Mark(s)	Descriptor
	0	No rewardable material
1	1-2	• Limited use of appropriate notation • Limited use of appropriate connections and directions of data/ information flow • Limited coverage of scenario requirement
2	3-4	• Some use of appropriate notation • Some use of appropriate connections and directions of data/ information flow • Some coverage of scenario requirements
3	5-6	• Mostly accurate use of appropriate notation • Mostly accurate use of appropriate connections and directions of data/information flow • Mostly accurate use of scenario requirements

Question Number	Answer	Mark
4 (a)	Award **one** mark for a correct way (1) and **one** mark for a justification for that way (1), up to a maximum of **two** marks. • Employ an ethical/''white hat' hacker' (1) who could attempt to gain access/attempt to socially engineer users (1) • Use automated (testing) software/tools (1) which would scan system settings and programs and produce a report of errors/conflicts/weaknesses (1) Marking points may be reversed/given in any order. Accept any other appropriate response.	(2)

Question Number	Answer	Mark
4 (b)	Award **one** mark for a correct reason (1), **one** mark for a justification for that reason (1), and one mark for an expansion of the justification (1) up to a maximum of **three** marks. • The likelihood of unauthorised access is reduced (1) because unused ports/connections/programs are disabled (1) which limits the number of weak points/attack vectors (in a system) (1) Marking points may be reversed/given in any order. Accept any other appropriate response.	(3)

Question Number	Answer	Mark
4 (c)	Award **one** mark for a correct reason (1), **one** mark for a justification for that reason (1), and **one** mark for an expansion of the justification (1) up to a maximum of **three** marks. • It is the principle that everybody/all services are equal (1) which stops content providers paying for greater bandwidth (1) so companies cannot gain an unfair (competitive) advantage over others (1) • A company will be judged based on the quality of their content (1) rather than the speed that it is delivered by the ISP (1) so it gives a fairer representation of service offered (1) Marking points may be reversed/given in any order. Accept any other appropriate response.	(3)

Question Number	Answer	Mark

4 (d) – Synoptic question	Responses will be credited according to the learner's demonstration of knowledge and understanding of the material, using the indicative content and level descriptors below.
	The indicative content that follows is not prescriptive. Responses may cover some or all indicative content, but learners should be rewarded for other relevant responses.
	Discussion may consider:
	Collaboration
	• Use of online systems for central storage:
	  ○ allows workers in any location to access the files when needed
	  ○ work can be accessed 24/7 so different time zones can continue working on the same files after the other time zone has finished.
	• Use of online development tools to enable simultaneous working regardless of location, so teams can be based in different time zones or locations.
	• No need to have testing in one office and development in another. Testers/developers can be chosen from different offices depending on availability and skills.
	• Online testing documentation. Test outcomes from one team can be instantly seen by developers in another team which allows immediate action.
	• Use of online software to enable collaboration on documents (e.g. google docs) aids development documentation such as change logs as both testers and developers can contribute.
	Communication
	• Range of communication methods – email, skype, instant messaging allows teams to work in flexible ways and easily communicate with teams in remote locations and in different time zones (e.g. teams that are only a couple of hours apart can communicate live but others may have to use email).
	• Easy mass communication between whole team. Groups/mailing lists would allow communications to be easily targeted to the appropriate team.
	• Global communications, just as easy to send a message to somebody in another country as it is to send it to somebody in the same office.
	• Translation tools help teams from different countries work effectively together.
	• Communicate via a range of formats and media – screen capture of errors, etc. can facilitate fixing.
	• Online meetings – staff won't have to travel – cost and time implications.
	Scheduling/Planning
	• Timelines/deadlines can be automatically synched to calendars so all developers are aware of changes.
	• Digital systems automatically allow for variations in time zones avoiding misunderstandings.
	• Use of centrally stored planning to track and monitor progress allowing tasks to be assigned to the correct teams and changes made in order to deal with issues and delays.
		(6)

	• Can set up electronic project planning that allows all staff to input (and can be taken over at different times). • Sharing of work across teams in different time zones allows for more work to be completed in a short time where deadlines have to be met.	

Level	Mark(s)	Descriptor
Level 0	0	No rewardable content
Level 1	1–2	• Demonstrates isolated knowledge and understanding; there will be major gaps or omissions • Few of the points made will be relevant to the context in the question • Limited discussion which contains generic assertions rather than considering different aspects and the relationship between them
Level 2	3–4	• Demonstrates some accurate knowledge and understanding, with only minor gaps or omissions • Some of the points made will be relevant to the context in the question, but the link will not always be clear • Displays a partially developed discussion which considers some different aspects and some consideration of how they interrelate, but not always in a sustained way
Level 3	5–6	• Demonstrates mostly accurate and thorough/detailed knowledge and understanding • Most of the points made will be relevant to the context in the question, and there will be clear links • Displays a well-developed and logical discussion which clearly considers a range of different aspects and considers how they interrelate, in a sustained way

Question Number	Answer	Mark
4 (e) – Synoptic question	Responses will be credited according to the learner's demonstration of knowledge and understanding of the material, using the indicative content and level descriptors below. The indicative content that follows is not prescriptive. Responses may cover some or all indicative content, but learners should be rewarded for other relevant responses. Evaluation may consider: **Risks** Proposal 1 • Potential loss of data if servers are powered off • May not work if employees are working outside normal office hours Proposal 2 • Security of documents may be compromised if shared without encryption • Concern over the protection and sharing of personal data (staff and customers) • Potential to send information/documents to the wrong people	(6)

	• Physical storage can be lost/damaged/storage can be lost **Positive impact** Proposal 1 • Data will be backed up at a different location, minimising risk of data loss • Reduction in costs of electricity • Reduce environmental impact Proposal 2 • Reduce need for physical storage • Reduction in printing requirements • Quicker to share documents • Reduce environmental impact • Transmission is safer and documents are encrypted • Bespoke system designs for internal networks and their interfaces can help aid accessibility and inclusivity • Data stored within documents can be easily integrated into data analysis and presentation systems. **Evaluation/Conclusion** For example: Proposal 2 will not only have a positive impact on GudgeTech Ltd but also on the environment. It will change the way that employees work as well as reduce the need for resources and storage. Documents can be shared quickly between employees and security of documents and intellectual property will be increased.	

Level	Mark(s)	Descriptor
Level 0	0	No rewardable content
Level 1	1–2	• Demonstrates isolated elements of knowledge and understanding; there will be major gaps or omissions • Few of the points made will be relevant to the context in the question • Limited evaluation which contains generic assertions leading to a conclusion that is superficial or unsupported
Level 2	3–4	• Demonstrates some accurate knowledge and understanding, with only minor gaps or omissions • Some of the points made will be relevant to the context in the question, but the link will not always be clear • Displays a partially developed evaluation which considers some different competing points, although not always in detail, leading to a conclusion which is partially supported
Level 3	5–6	• Demonstrates mostly accurate and thorough/detailed knowledge and understanding • Most of the points made will be relevant to the context in the question, and there will be clear links • Displays a well-developed and logical evaluation which clearly considers different aspects and competing points in detail, leading to a conclusion that is fully supported

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